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PLANT IMMIGRANTS

Issued monthly by the Office of Foreign Seed and Plant Introduction, Bureau of Plant Industry, Department of Agriculture.

No. 93. January 1914.

Genera Represented in This Number.

Bambos	37009	Forsythia	37004
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Cudrania	36986	Myrciaria	37034
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Eugenia	36968, 37017		
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PLATES: Eugenia luschnathiana. The Pitomba of Brazil.

(NOTE: Applications for material listed in this bulletin may be made at any time to this Office. As they are received they are filed, and when the material is ready for the use of experimenters it is sent to those on the list of applicants who can show that they are prepared to care for it, as well as to others selected because of their special fitness to experiment with the particular plants imported.

One of the main objects of the Office of Foreign Seed and Plant Introduction is to secure material for plant experimenters, and it will undertake as far as possible to fill any specific requests for foreign seeds or plants from plant breeders or others interested.)

Bambos guadua. (Poaceae.) 37009. Seeds of a bamboo from Puerto Bertoni, Paraguay. Presented by Mr. G. H. Bertoni. "Takuara, a native Paraguayan bamboo, which grows by preference in the low sandy lands along the rivers. Here it reaches a height of 15 to 20 m. (50-65 ft.) and the culm which reaches a diameter of from 10 to 15 cm. (4-6 in.) is used for pots or jars." (Bertoni.) For distribution later.

Bromelia sp. (Bromeliaceae.) 36967. Seeds of the gravatá from Bahia, Brazil. "A bromeliaceous plant, allied to the pineapple, which grows in some of the districts around Bahia. The fruit is occasionally brought into the market. In form it is oblong and usually somewhat angular, about 3 inches in length and 1 inch thick. The persistent calyx crowns the apex with a tuft of dry sepals about 1 inch in length. In color the fruit is a translucent pale straw. The skin is about $\frac{1}{8}$ inch thick, with no well marked distinctions between it and the flesh, which is translucent, crisp, juicy, and contains two or three rows of small, flattened seeds, about $\frac{1}{4}$ inch in diameter. The flavor is spicy and delightfully acid. The skin must be carefully removed before eating the fruit, as it contains a principle which burns the lips and mouth severely. The fruits are produced individually, not united in one compound fruit as in the pineapple. The name gravatá is applied to a number of the Bromelias here." (Dorsett, Popenoe, and Shamel introduction.) For distribution later.

Citrus spp. (Rutaceae.) 36942-951, 36971, 36975. Budsticks and seeds of various citrus fruits from Bahia, Brazil. Among them are a good quality citron, a promising pink-fleshed pomelo, the true *laranja tanja*, a *laranja selecta* which may mature in California in spring and summer, a *laranja lima*, or lime orange, with a very good flavor combining those of the orange and the lime, and a considerable quantity of seeds for stock purposes. (Dorsett, Popenoe, and Shamel introduction.) For distribution later.

Crotalaria sp. (Fabaceae.) Seed from Bahia, Brazil. "Seed from two plants in the orange orchard of Coronel Baretto, Cabulla. Plants two to three feet high, producing from two to five main branches, each bearing from six to twelve pods containing 12 to 20 seeds each. Root development extensive, the roots finely branched and covered with medium sized nodules. Root system closely resembles that of vetch. Stems succulent and if plowed under at that stage would quickly decompose. This plant is self sown in all the orange orchards we have visited. Dr. Argollo says it is particularly suited for dry or

semi-dry lands, and predicts that it may become a very useful cover crop for Southern California and other semi-arid regions." (Dorsett, Popenoe and Shamel introduction.) For distribution later.

Cudrania javanensis. (Moraceae.) 36986. Seed from Hongkong, China. Presented by Mr. W.J. Tutcher, Superintendent, Botanical and Forestry Department. "The fruit is round, rather more than an inch in diameter, of a bright orange color, with a sweet, rather insipid taste. It is quite as good a fruit as many others which are eaten." (Tutcher.) For distribution later.

Elaeis guineensis. (Phoenicaceae.) 36973. Seeds of the dendé or Guinea oil palm from Bahia, Brazil. "Seeds from trees in the vicinity of Matutú, Bahia. The fleshy pericarp of the seeds furnishes an oil which is an important food product here, especially among the negroes, with whom the palm is said to have come over from Africa. It now grows in an apparently naturalized state on the hillsides about Bahia, and in many places is one of the most conspicuous features of the landscape. It is a particularly handsome plant, with long feathery leaves and a slender trunk sometimes 50 or 60 feet high. It is probably too tropical for California, but may succeed in south Florida, where it should be given a thorough trial both as a food product and as an ornamental plant." (Dorsett, Popenoe and Shamel introduction.) For distribution later.

Eugenia dombeyi. (Myrtaceae.) 36968. Seeds of the grumichama from Bahia, Brazil. "The grumixama or grumichama is a myrtaceous fruit native of Brazil. Both for its ornamental value and its fruit it is worthy of a careful trial in California and Florida. The tree, which grows to 25 or 35 feet, is shapely and densely clothed with deep glossy green foliage. The individual leaves are elliptical, about 4 inches in length, thick and leathery. The fruits ripen here in November, and in general appearance very much resemble cherries. The form is round or slightly flattened, the color deep crimson. The stem is one inch or more in length. The thin skin encloses a soft, tender pulp, of mild and delicate flavor. The seeds, one to three in number are rounded or hemispherical, about one-fourth to three-eighths inches in length. The grumichama is one of the most agreeably flavored myrtaceous fruits we have tasted and in addition is a beautiful and shapely ornamental." (Dorsett, Popenoe and Shamel introduction.) For distribution later.

Eugenia luschnathiana. (Myrtaceae.) 37017. Seeds of the pitomba from Bahia, Brazil. "A rare and interesting

myrtaceous fruit seen in two gardens at Cabulla, near Bahia, and called by the natives pitomba. Berg (in Martius, Flora Brasiliensis) lists the pitomba under the above specific name, and gives Bahia as its habitat, but adds that there are other species which produce edible fruits as well, so this may not necessarily be the above named. Seeds from the gardens of Col. Elvidio Esteres Assis and Dr. Fortunato da Silva, Bahia. The tree is from 20 to 30 feet in height, compact, densely foliated and very handsome in appearance. The individual leaves are elliptical lanceolate, acuminate, about 3½ inches in length, thick and leathery, glossy, deep green above, light green beneath. Veins scarcely discernible on upper surface. The fruits, which are produced on the small branches, are broadly obovate in form, about 1 inch in length and seven-eighths inches in breadth, on an average. The stem is 1 inch or more in length, slender. Apex flattened and broad, crowned by the persistent calyx, with 4 or 5 green lanceolate sepals ½ inch or more in length. Color of fruit deep orange yellow, when fully ripe almost bright orange. Skin thin, tender and easily broken, enclosing a soft melting pulp, bright orange in color, very juicy, and of an acid, very aromatic flavor. The aroma of the fruits themselves is very penetrating. The seeds, normally one in number but sometimes two, three, or rarely four, are attached to one side of the seed cavity, and do not adhere to the flesh. When single, the seed is nearly round, slightly less than one-half inch in diameter, the seed coat whitish. When more than one, the seeds are hemispherical or angular. The season here is December. The trees which we have seen do not produce as heavy a crop as the grumichama or some other myrtaceous fruit, but nevertheless bear fairly abundantly. The fruit is especially esteemed for making jellies, and is also used for jams and sherbets, while the negroes relish them when eaten out of hand. The flavor, however, is somewhat acid, when they are eaten in this way, and the fruit will probably be of the greatest value for culinary use rather than dessert. It should be tried in the warmest parts of Florida and California. It seems to be vigorous and easily grown, great numbers of volunteer seedlings springing up around the base of the tree after the fruit has dropped." (Dorsett, Popenoe, and Shamel introduction.) For distribution later. See halftone plates.

Eugenia uniflora. (Myrtaceae.) 37026. Seeds of pitanga from Bahia, Brazil. "This plant is already grown in California and Florida to a limited extent but, so far as we know, its value as a hedge plant is not realized in those

states. Here in Bahia it is one of the commonest hedges, and seems to be admirably adapted to this use. From the fruit a large number of really desirable ices, jams, and preserves can be made." (Dorsett, Popenoe and Shamel introduction.) For distribution later.

Forsythia suspensa. (Oleaceae.) 37004. Cuttings from Peking, China. "A variety of 'Golden bell' with larger flowers apparently than the ordinary sort, commonly found in European and American gardens. Very resistant to drought and able to stand a fair amount of alkali in the soil. Of special value to drier sections of the United States. Chinese name 'Huang shou tan.'" (Meyer's introduction.) For distribution later.

Garcinia sp. (Clusiaceae.) 36977. Seeds from Bahia, Brazil. "Seeds of the *mangostao da Africa*, from the roca of Dr. Miguel de Teive e Argolla, Rome, Bahia. The name African mangosteen implies that it is a Garcinia, and it has every appearance of being a member of that genius. The plant, from which the seed was collected is young, about six feet high, broad and spreading, with oblong, elliptical, leathery, thick leaves. The fruits are broadly pyriform, about 1½ inches in length and bright orange in color. The skin is thin, and surrounds a small mass of bright orange pulp in which the two very large oval seeds are imbedded. The flavor is acid, but pleasant. To be grown in connection with the mangosteen experiments. May prove desirable as stock for the mangosteen." (Dorsett, Popenoe and Shamel introduction.) For distribution later.

Glycine hispida. (Fabaceae.) 37036-037, 37040-055. Seeds of eighteen varieties of soy beans from Fusan, Korea. Presented by Mr. G. H. Winn, Presbyterian Mission. Some of the hardiest and most resistant soy beans of Korea, produced for the work of the Office of Forage Crop Investigations in making comparative studies of all procurable varieties of this valuable crop.

Holcus sorghum. (Poaceae.) 36960-963. Seeds of sorghums from Caprivizipfel, German Southwest Africa. Presented by the Imperial Governor, Windhuk. Four varieties introduced in the hope of securing forage and grain sorghums of considerable value from this as yet little known portion of West Africa. For distribution later.

Myrciaria cauliflora. (Myrtaceae.) 37034. Seeds of the jaboticaba from Rio de Janeiro, Brazil. "Seeds from about 40 pounds of fruits purchased in the public market at a cost of 5 milreis ($1.70) for the lot. The fruit appears

to be of an entirely different type from those of which seed was sent in under S. P. I. Nos. 36702 and 36709, suggesting that they may even be distinct species, since there are two or more species of Myrciaria in Brazil known under the common name of jaboticaba. This variety is uniformly round or slightly oblate in form, variable in size, the best specimens being slightly less than one inch in diameter and of about the same length. The skin is smooth and glossy, deep purplish maroon in color over the entire surface. The pulp is very juicy, and of pleasant vinous flavor. Seeds one to four, two being the commonest number in good sized fruits. For further data concerning the jaboticaba see the notes under S. P. I. No. 36702 in Plant Immigrants, No. 92, December 1913, p. 724-726." (Dorsett, Popenoe, and Shamel introduction.) For distribution later.

Spondias tuberosa. (Anacardiaceae.) 37018. Seeds of the imbu from Bahia, Brazil. "This tree is not common here on the coast but is said to grow profusely on the dry *catinga* lands of the interior of the state of Bahia. The tree is low and spreading in habit, with a dense umbrageous head of light green foliage. The leaves are compound, about 6 inches in length. The fruits are oval to nearly round, about 1 inch in diameter on an average, and pale greenish yellow in color when fully ripe. The large hard seed is surrounded by soft, juicy pulp, of a rather acid flavor, much esteemed when prepared with milk to form the popular drink *imbuzada*." (Dorsett, Popenoe, and Shamel introduction.) For distribution later.

NOTES FROM CORRESPONDENTS ABROAD.

Mr. P. H. Dorsett writes from Piropora, Brazil, February 8, 1914. "We found Lavras interesting, and from our standpoint, rather fertile. We secured some good photographs there of Jaboticaba, bamboo and preparing it for use, of interesting annonaceous fruits, ornamentals, grasses, of a new fruit pera de campo. I hope the specimen we sent reached you in good condition. This fruit has interested us very much. I developed my photographs in my room, then walked about a mile to a small stream to wash them. We also secured some very good landscape views of the surrounding country. We spent a very enjoyable time at Lavras. Met there Mr. Hunnicutt, who has charge of the agricultural work of the Missionary School; also met Dr. Allyn, Prof. Shaw and Knight. They all had us to tea or to dinner, and I can assure you we did enjoy their American cooking. Messrs. Hunnicutt and Knight went with us on a several days' trip to Pratinha, where we visited two of

the largest and best breeders of Zebu cattle. The Zebu cattle are good looking animals and have a good many points to recommend them for this country and this people. They are not, however, as I see it, strictly beef or milk cattle. But as general purpose animals in this country and under the conditions under which they appear to have many points to recommend them. The two Mr. Lomao's at Pratinha speak in the highest terms of these cattle. Mr. Pedro Lamao has a cow, "*Palinku*" that he refused 10 cantos, about $3500, for. He sold his bull calf at weaning time for six cantos, about $3000. This breed of cattle is praised by some and condemned by others. It no doubt has its place in this country and possibly in others. A day or two after returning to Lavras we packed our trunks and left for a day or two stop at Sao Joao Del Rey, a city of 8,000 or 10,000 that we stayed a night in on our way to Lavras. Here we made some interesting photographs and collected herbarium specimens and seed of quite a number of the range grasses. We met here a Mr. Fisher who represents or looks after putting up locomotives for the locomotive works which has been in this country for about seven years. He had been to Lavras and knew the people there. On January 28th we left for Sitio, a junction point where we had to change cars for Barbacina en-route to Belle Horizonte and Pirapora. We had several hours here so struck out for the campo. By accident I found three pera de campo fruits on a section flat car, along the track five or six miles from Sitio where I had gone to get a photograph of a *Spirea*-like flowering plant. Wilson was not with me and I could not make the man understand that I wanted to know where they found them. I returned to Sitio and we put up for the night. Early next morning we hit the track for five or six kilometers back down the track to where the section men were working the day before. We found them near the same place and Wilson had no difficulty in finding out where we could get some fruit of 'pera de campo', in fact, one of the men went with us into an adjoining pasture and showed us plants and fruits. We got all we could find. I also got some of the plants. After getting the fruit we went back to the hotel and photographed them. We then arranged to send our grips to Barbacena by train, and about 2:30 we started for the same town afoot. It is about sixteen kilometers from Sitio. We arrived in Barbacena about seven, got our baggage and went back to the hotel. On the way from Sitio to Barbacena we made several photographs characteristic of the country. The next morning, after arriving at Barbacena, we looked up Mr. Brainard and Mr. Wright, two North American boys, one from California, the other, Wright, from Pennsylvania. They are in charge of agricultural work at

this place. We spent a most enjoyable day here going over their farm of about one hundred and fifty acres. They are experimenting with apples, plums, grapes, pears, persimmons, etc. The place is in good shape and things look pretty well. Early next morning, Saturday, January 31, 1914, we boarded the train for Bello Horizonte which we reached about noon. Bello Horizonte is a city of 45,000 to 50,000 people, the capital of Minas. It is laid out somewhat like Washington, D.C., with streets, avenues, and circles. I noticed in one of the parks here a very large concrete arch, made specially for children to skate upon. It struck me as a good thing. Enough of such circles in our city parks would afford pleasure to the children and tend to keep them off the streets and out of danger. We made quite a number of photographs here and developed them and those we made since leaving Lavras.

"On Wednesday, Feb. 4, 1914, we left for Lagoa Santa. We passed through a hilly broken country, similar in practically all respects to the country we have seen practically since leaving Rio de Janeiro. We arrived at Vespasiano the R. R. station where we leave the train to go to Lagoa Santa, about noon. We secured a snack at a stand at the station, and after arranging with a negro man with a 12 ox team to haul our baggage to Lagoa Santa, a distance of supposedly one league, about four miles, we shouldered our camera and started on foot. The colored man told us the road was crooked and we had better stay close to the cart. On top of the first high hill which we reached with shirts and in fact with coats dripping in perspiration (everyone wears a coat in this country, you can leave off the shirt, but you must have on a coat) we stopped to photograph an annonaceous fruit that was fully as large as a cocoanut. We also photographed the tree. By this time the ox cart was out of sight and out of hearing. We struck a good gait up the road, but after going about one-half a mile found to our dismay that there were three in place of one road and that they were about equally as much traveled. We were somewhat put out, but after examining the roads carefully, decided to take the center one. We walked pretty fast for about an hour and fortunately finally came up with the ox team. We arrived at Lagoa Santa about five or six o'clock, and a *deader* town one need not want to see. To our dismay, or rather supposedly discomfort, we found the hotel closed and could not find anyone to give us shelter or something to eat. We knew there was plenty of room on the ground in the fields, so made the best of it and proceeded to get a few photographs of this town in the interior of Brazil, made famous by the botanical studies of Warming years ago. When too dark to take photographs we returned to the store

where we left our grips and purchased two small boxes of sardines and a loaf of bread. Finally the owner of the store and an unfurnished house adjoining said we could stay in the unfurnished house. We went to the upper floor, which besides the floor only had a roof over it and began to prepare for our frugal meal. The man came up and offered to bring up a mattress and said coffee was coming up. He also gave us a moringa of water. We were then in pretty good shape. He soon brought up a pot of coffee and an oil taper. We enjoyed our supper and retired. We were up at 6 A. M. the next day. The man brought up a pot of coffee as soon as he heard us up. He also said he was going to Vespasiano, but that he had ordered breakfast and it would be ready about nine o'clock. We arranged for him to take our baggage back and leave it at a store at Vespasiano. We went out and made some more photographs and about noon we started back. The day was oppressively hot and we had the collecting case and my large camera. The distance from Lagao Santa to Vespasiano is, in my opinion, more nearly ten than four miles. This town, Pirapora, has a population of 2,000, practically all negroes. They are as slow as molasses in January. The rapids are opposite the town. There looks to be a fall of 20 to 50 feet in a distance of several hundred yards. There is no navigation above here except in canoes. We hope to be able to leave here Tuesday or Wednesday, if only to go a part of the way up the river. This will give us a chance to see other towns and sections and we can catch the regular steamer later. The way they feed a fellow in this country is a fright. A cup of black coffee about eight or nine, breakfast at 10:30 to 12:00 and dinner 5:30 to 6:30 and coffee or tea at 9:00 P. M. I can tell you a good home dinner would taste awfully good now. This is a big level river bottom, used almost wholly for cattle raising, they are growing some rice and some corn. Corn throughout the sections we have visited is the principal crop grown. They grow thousands of acres of good corn, all by hand, breaking the land, planting and cultivating is all done with a hoe by hand. The Sao Francisco River at this point at this time, when it is fairly high, is about one-quarter of a mile wide and looks quite a good deal like the Ohio or Missouri. We were told Saturday that it takes twelve to fifteen days to go from here to Joazeiro, we have always been told before that the steamers make it down in about seven days. O, well, we will do the best we can and make the trip so as to get home with as little delay as possible."

On Monday April 13th. Mr. P. H. Dorsett and Mr. F. W. Popenoe, tanned by the rays of a tropical sun, returned to

this office after an extensive exploration trip in the southern provinces of Brazil, bringing nearly two tons of plant material including budwood of the best oranges from the Bahia and Rio districts. For the first time in the history of the office a party consisting of more than a single person has made an exploration trip of this kind. On October 4, 1913 Messrs. Dorsett and Popenoe accompanied by Mr. A. D. Shamel of the office of the Horticulturist sailed from New York bound for Bahia. For six months they journeyed through the provinces of lower Brazil visiting Rio, Santos, Campinas, Lavras, and other places of importance where interesting and valuable fruits were reported to be growing. Mr. Dorsett and Mr. Popenoe studied particularly the myrtaceous fruits, while Mr. Shamel investigated the citrus fruits, paying particular attention to the culture and history of the Navel Orange. A large number of photographs, covering a wide range of subjects was obtained by the party and their excellence of quality is far above the average. This excellence is due, no doubt, to the fact that all the negatives were developed in the field by Mr. Dorsett soon after they were taken. How Mr. Dorsett was able to develop these twenty-two hundred negatives in connection with his other work still remains a mystery, but it remains to be said that their excellence must be due, in a large measure to his untiring efforts. We are all glad that they are back with us again and it is particularly gratifying to know that the trip has been so beneficial to their health.

Eugenia luschnathiana. The Pitomba. S. P. I. No. 37017.

This interesting myrtaceous tree, growing in the garden of Dr. Fortunato da Silva, at Cabulla, Bahia, presents a very attractive appearance with its smooth, grayish brown bark and dense head of glossy, deep green foliage. While considered by Otto C. Berg a native of Bahia, the *pitombeiro*, as the pitomba tree is called in Portuguese, is rare in the gardens of that region. It grows to a height of 20 to 30 feet, and produces in late December its crop of bright yellow, aromatic fruits. While the climate of Bahia is strictly tropical, the success attained with many closely allied myrtaceous fruits in Florida and southern California justifies the belief that the pitomba may prove adaptable to one of those regions. Photo by Dorsett, Popenoe and Shamel, December 20, 1913.

Eugenia luschnathiana. The Pitomba. S. P. I. No. 37017.

Foliage and fruits of the pitomba, from the garden of Col. Elvidio Esteres Assis, at Cabulla, Bahia, Brazil. The brilliant yellow color, and agreeable, penetrating odor of this fruit make it very interesting. Its flavor, though somewhat acid, is pleasant, and is used principally in the manufacture of jams and jellies, for which purpose it is highly esteemed by the Brazilians. Photo

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